

WHAT IS CLAIMED IS:

1. An image-pickup apparatus comprising:

a shape-variable mirror having a deformable reflection plane and an electrode for controlling the shape of the reflection plane;

a drive unit for feeding a signal for driving the reflection plane to the electrode;

a taking-lens system for defining a focal length in accordance with the deformation amount of the reflection plane of the shape-variable mirror;

an image-pickup unit for picking up images focused via the taking-lens system and the shape-variable mirror; and

a control unit for controlling the drive unit so as to continuously feed the drive signal in order to maintain the deformation state of the shape-variable mirror when the image-pickup unit is picking up images for use in one or part of a process of a subsequent stage.

2. An image-pickup apparatus according to Claim 1, wherein the control unit stops feeding the drive signal from the drive unit at a time other than when the image-pickup unit is picking up the subsequent-stage processing images.

3. An image-pickup apparatus according to Claim 1,

wherein the control unit continues to feed the drive signal from the drive unit during exposure.

4. An image-pickup apparatus according to Claim 3, wherein the control unit stops feeding the drive signal from the drive unit after the exposure.

5. An image-pickup apparatus according to Claim 1, wherein the control unit continues to feed the drive signal from the drive unit during changing the number of pixels read from the image-pickup unit.

6. An image-pickup apparatus according to Claim 5, wherein the control unit stops feeding the drive signal from the drive unit after the number of pixels read from the image-pickup unit is changed.

7. An image-pickup apparatus according to Claim 1, further comprising a mechanical shutter, wherein when the mechanical shutter is opened, the control unit continues to feed the drive signal from the drive unit when the image-pickup unit is picking up images of at least one or part of the process of the subsequent stage.

8. An image-pickup apparatus according to Claim 7,

wherein the control unit stops feeding the drive signal from the driving unit after the mechanical shutter is closed.

9. An image-pickup apparatus according to Claim 1, wherein the control unit continues to feed the drive signal from the drive unit even after the image-pickup unit is shifted to a frame-readout mode.

10. An image-pickup apparatus according to Claim 9, wherein the control unit continues to feed the drive signal from the drive unit while the image-pickup unit is continuously picking up images.

11. An image-pickup apparatus according to Claim 9, wherein the control unit continues to feed the drive signal from the drive unit while the image-pickup unit is picking up motion images.

12. An image-pickup apparatus comprising:  
an optical system comprising an active optical element having a functional region that converts optical characteristics of incident light in accordance with an applied drive signal so as to emit it;  
an image-pickup element that photo-electrically converts object images focused via the optical system;

a signal processing unit for processing an image-pickup signal of the object images produced from the image-pickup element in a predetermined manner;

an active optical-element drive unit for producing a drive signal to be applied to the active optical element; and

a control unit for controlling the active optical-element drive unit,

wherein prior to picking up images, the control unit controls the active optical-element drive unit so as to apply a predetermined drive signal to the active optical element so that a focal position of the optical system is accordingly adjusted.

13. An image-pickup apparatus according to Claim 12, wherein the active optical element is a shape-variable mirror with optical characteristics changeable by varying the shape of a reflection plane.

14. An image-pickup apparatus according to Claim 12, wherein upon determining an exposure amount prior to picking up images, the control unit controls the active optical-element drive unit so as to apply a predetermined drive signal to the active optical element.

15. An image-pickup apparatus according to Claim 12, wherein upon adjusting a white balance prior to picking up images, the control unit controls the active optical-element drive unit so as to apply a predetermined drive signal to the active optical element.

16. An image-pickup apparatus according to Claim 12, wherein the active optical-element drive unit produces a drive signal corresponding to any focusing position within a focusing range from a minimum imaging distance to infinity as a predetermined drive signal in that a focal position of the optical system is accordingly adjusted.

17. An image-pickup apparatus according to Claim 14, wherein the active optical-element drive unit produces a drive signal corresponding to any focusing position within a focusing range from a minimum imaging distance to infinity as a predetermined drive signal in that a focal position of the optical system is accordingly adjusted.

18. An image-pickup apparatus according to Claim 16, wherein the active optical-element drive unit produces a drive signal corresponding to a substantially intermediate focusing position within the focusing range as a predetermined drive signal in that a focal position of the

optical system is accordingly adjusted.

19. An image-pickup apparatus according to Claim 12, wherein the optical system comprises a variable-focal point optical system, and wherein the active optical-element drive unit produces a drive signal corresponding to any focusing position in entire focal lengths adaptable to the variable-focal point optical system within a focusing range from a minimum photographing distance to infinity as a predetermined drive signal in that a focal position of the optical system is accordingly adjusted.

20. An image-pickup apparatus according to Claim 14, wherein the optical system comprises a variable-focal point optical system, and wherein the active optical-element drive unit produces a drive signal corresponding to any focusing position in entire focal lengths adaptable to the variable-focal point optical system within a focusing range from a minimum photographing distance to infinity as a predetermined drive signal in that a focal position of the optical system is accordingly adjusted.

21. An image-pickup apparatus according to Claim 19, wherein the active optical-element drive unit produces a drive signal corresponding to a substantially intermediate

focusing position within the focusing range commonly included in entire focal lengths adaptable to the variable-focal point optical system as a predetermined drive signal in that a focal position of the optical system is accordingly adjusted.

22. An image-pickup apparatus according to Claim 12, further comprising a temperature-detection unit, wherein the active optical-element drive unit corrects a drive signal in accordance with a detected signal from the temperature-detection unit.

23. An image-pickup apparatus according to Claim 12, further comprising a humidity-detection unit, wherein the active optical-element drive unit corrects a drive signal in accordance with a detected signal from the humidity-detection unit.